3. KEY FINDINGS

This chapter summarizes some of the general themes and key findings of the 2003 South Sound Survey. The market area served by the five existing South Sound routes is identified by mapping survey respondent home locations. Noteworthy changes in travel patterns since the 1999 survey are highlighted, along with any concurrent demographic trends. Finally, an analysis of travel patterns and issues regarding the possible re-routing of auto ferry service from Fauntleroy into Colman Dock (Pier 52) is presented.

3.1 WSF SOUTH SOUND MARKET AREA

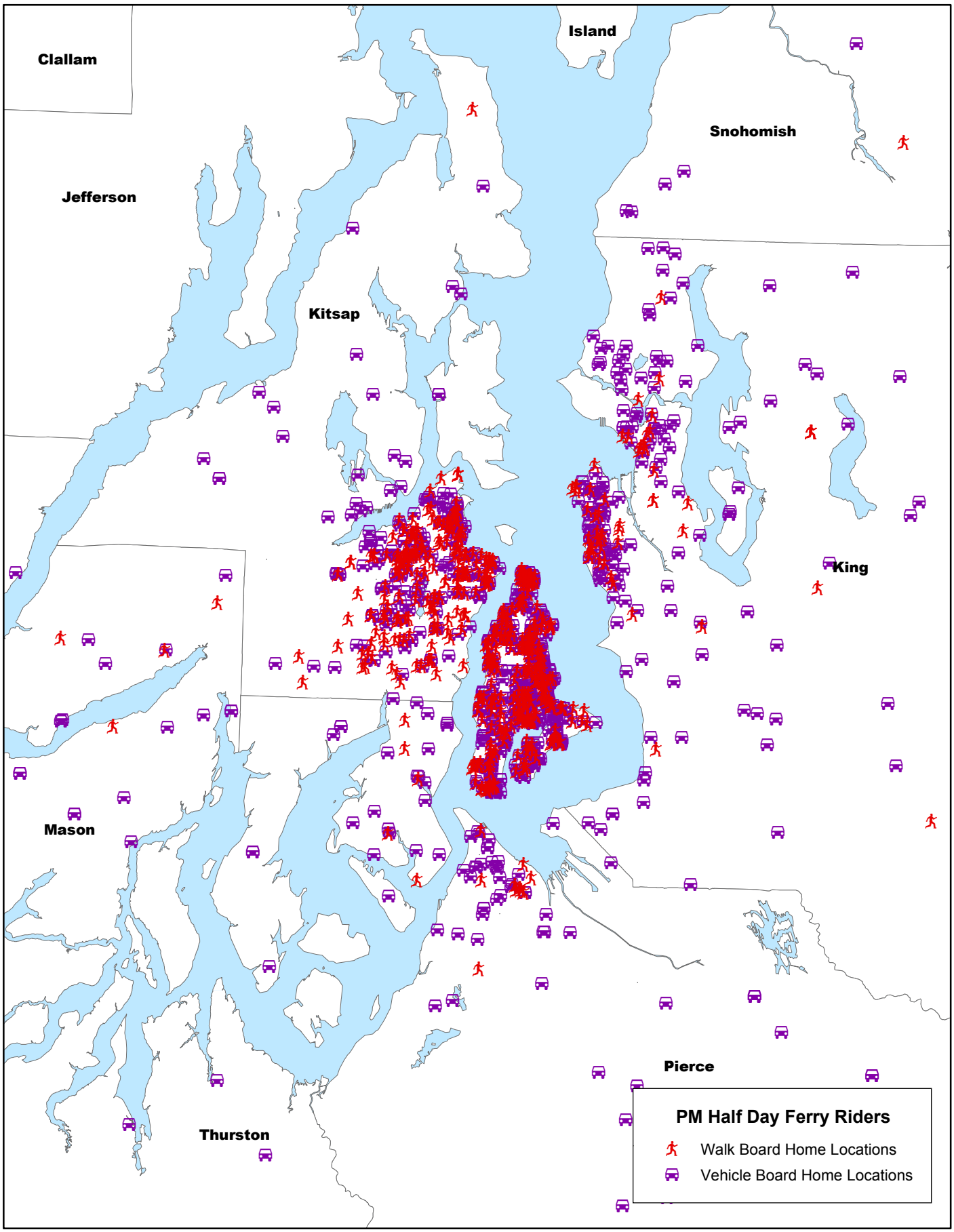
Route-specific trip tables and maps in the subsequent chapters provide detailed information about the trip origins and destinations of survey respondents. However, when considering the larger geography served by the five South Sound routes, the relevant market area is best graphically depicted by plotting home locations for the entire set of PM peak and non-peak survey respondents.

Accurate home address information was obtained using a combination of two tactics. One involved directly requesting this information on the survey form. A second had respondents provide the address of their trip origin and destination locations, and then separately provide the location type associated with these places, with one of the choices being "home." Between these two approaches, home address information was available for nearly all of the usable survey records.

Figure 3-1 presents a density plot of survey respondents' home locations for the combined PM peak and PM non-peak survey periods. Two different symbols are used in the figure to identify the ferry boarding mode (walk-on or in-vehicle) for the respondent of each home location plotted.

Overall, the South Sound ferry travel market covers six counties, with a concentration of residential locations on Vashon Island, and a relatively denser residential pattern on the west side of Puget Sound, particularly in Kitsap County, compared with that on the east side.

Figure 3-1
Weekday Market Served - Rider Home Locations for South Sound Routes



3.2 KEY FINDINGS AND CHANGES SINCE 1999

Despite the cumulative dampening effects on ridership of three fare increases and an economic slowdown between the 1999 and 2003 surveys, a primary finding is that much of the results of the 2003 survey are remarkably similar to those in 1999. There are some exceptions to the general similarity, and these are the subject of several of the key findings within this section.

The findings presented herein are organized by topic with results documented for all applicable routes. This is in contrast to the subsequent chapters, each of which deals with a single route.

Unless otherwise noted, all reported changes in travel behavior for the 2003 survey are relative to the 1999 survey findings as the basis of comparison.

The following findings relate to trip-making information, including PM peak period ridership trends, trip purpose distribution, frequency of ferry use, types of origins and destinations, travel modes, and commuting patterns.

PM Peak Period Ridership Trends on the Survey Day

With two exceptions, average daily ridership as well as survey day PM peak period ridership was lower in 2003 than in 1999. A key contributing factor to the decline in ridership is the series of fare increases and tariff revisions that have occurred since 1999, resulting in a cumulative average increase in fares of more than 40%. Two exceptions to the rule are noted below.

- Despite a declining trend in average daily ridership, the Point Defiance–Tahlequah route exhibited 17% higher PM peak period ridership (+117 passengers) on the 2003 survey day than in 1999. This may be the result of service reductions since 1999, which could be concentrating more ridership within the PM peak period.
- PM peak period ridership on the Fauntleroy-Southworth route for the 2003 survey day was actually 7% higher (+75 passengers) than in 1999. This route has received smaller percentage fare increases than others in the system, making it relatively more attractive for cross-sound travel compared to the Seattle–Bremerton and Seattle–Bainbridge routes than it was previously. Another possible contributing factor could be schedule changes implemented in September 2003, which have effectively increased the capacity between Fauntleroy, Vashon and Southworth during the early half of the PM peak period.

In addition to the above growth trends, there are a few cases where there was a shift in the directional shares of travel in the PM peak period between the 2003 and 1999 surveys.

- For the Southworth-Vashon route, eastbound (to-island) travel in the PM peak period was the dominant travel direction in 1999, representing 61% of all trips (see Table 7-4). In 2003, the dominant travel direction had reversed, and eastbound travel represented only 27% of all trips (see Table 7-3). This may be a reflection of the decline in manufacturing activity at the K2 factory on Vashon Island.

- Although PM peak ridership on the Fauntleroy-Vashon route during the 2003 survey day was 247 fewer riders than in 1999, the level of westbound (to-island) travel during the PM peak period has remained stable (see Table 5-6 and Table 5-5). As a result, the westbound directionality during the PM peak period has increased from 63% in 1999 to 71% in 2003, with the share of eastbound travel decreasing from 37% in 1999 to 30% in 2003. A similar pattern persisted during the PM non-peak hours (before 3 PM and after 7 PM), with eastbound travel decreasing by 61% (down from 1,000 to 389 trips in 2003) while the level of westbound travel grew slightly over the same period.
- Similarly, travel on the Fauntleroy-Southworth route has also become more directional, with the share of westbound travel representing 79% of all PM peak period trips in 2003, up from 69% of trips in 1999 (see Table 6-6 and Table 6-5). In fact, the 2003 survey period total ridership has increased to 1,090 passengers, a modest 7% increase from the 1,015 passengers in 1999. Combined with the increasing westbound share of travel, eastbound ridership declined by 25% (–75 riders), causing the eastbound share of travel to drop from 31% to 22%, for a total of 234 PM peak period riders in 2003.

Trip Purpose and Frequency

Survey respondents were queried about the purpose of their trip and how frequently they use ferry service. Most routes did not see major changes in the trip purpose distributions or the frequencies of use by their patrons. A few exceptions are worth noting.

- The frequency of use by patrons making "discretionary" trips, or those other than for work/school/business purposes, has increased on the Point Defiance-Tahlequah, Fauntleroy-Southworth and Seattle-Vashon passenger-only routes.
- In particular for the Seattle-Vashon passenger-only route, the share of patrons reporting a social/recreational/shopping trip purpose and ferry usage of six or more one-way trips per week has increased from 30% in 1999 to 55% in 2003 (see Table 8-2 and Table 8-1). However, there was not an appreciable change in the *overall* distribution of trip purposes on this route.
- Travel between the Kitsap Peninsula and downtown Seattle via the Southworth-Vashon and Seattle-Vashon passenger-only routes with a transfer at Vashon has declined somewhat since 1999, down from 304 PM peak riders in 1999 to 204 in 2003.
- Commuters (those traveling for work, school or business-related purposes) comprised from 62% of the PM peak period ridership on Point Defiance-Tahlequah route to 93% of the PM peak period ridership on the Seattle-Vashon passenger-only route (which includes riders to/from both Vashon and Southworth via a transfer at Vashon). In general, the commuter share of riders by route has not changed appreciably since 1999, with the exception of the Fauntleroy-Southworth route, where the share of commuter riders increased from approximately 76% (776 of 1,015) in 1999 to 84% (917 of 1,090) in 2003.
- The increase in both overall and commuter travel during the PM peak period on the Fauntleroy-Southworth route may be due to a substitution effect resulting from relatively lower fare increases on this route between 1999 and 2003 when compared to other cross-sound routes. By mid-2003, Fauntleroy-Southworth fares had become about

22% lower than those for Seattle-Bremerton, Seattle-Bainbridge or Edmonds Kingston, compared to 1999, when all of these cross-sound routes had the same fares.

Trip Origin and Destination Types

Survey respondents were also queried about the type of origin and destination (home, work/school, or other) for the one-way trip on which they were surveyed. Of the nine possible combinations, the predominant pattern for the PM peak survey period was a "work/school to home" trip, with "other to home" and "home to other" generally ranking second and third in frequency, respectively. Key differences from 1999 are as follows.

- On both the Point Defiance–Tahlequah and Fauntleroy–Vashon routes, to-island trips in the PM peak period exhibited a shift from "work/school to home" travel to "other to home" travel. This may reflect a decrease in direct trips, with more travelers opting to make an intermediate stop after work for another purpose before returning home.
- Similarly, for eastbound PM peak travel on the Fauntleroy–Southworth route, the share "work/school to home" trips has increased from 31% to 45% since 1999 (see Table 6-5 and Table 6-6). Much of this shift in eastbound PM peak travel appears to have come from the share of "other to home" trips, which has decreased from 34% to 18%. This result may suggest a reduction in intermediate stops for ferry riders on their way home from work and/or growth in commute trips to/from jobs on the Kitsap Peninsula, as eastbound is the "reverse commute" direction during the PM peak period. The pattern of westbound trip origin and destination types remained essentially unchanged in 2003 relative to 1999.
- On the Southworth-Vashon route, the eastbound (to-island) PM peak period travel share of "home to work/school" trips went from 42% in 1999 down to zero in 2003 (see Table 7-3 and Table 7-4). This noteworthy drop in eastbound trips of this type, which contributes to the westbound directionality shift discussed above, may reflect the decline in manufacturing activity at the K2 factory on Vashon Island. As a result of this shift, the share of the opposite eastbound pattern of "work/school to home" trips increased from 25% to 66%, though the number of such trips remained constant at about 53 PM peak riders in both 1999 and 2003.

Travel Modes

Survey respondents were both questioned and observed for how they boarded the ferry (walk-on or in-vehicle). In addition, walk-on boarding respondents were asked about their travel modes to and from the ferry terminal. These travel mode results are presented in each route's chapter, aggregated across both travel directions. A few key findings related to changes in ferry user travel modes are cited below.

- On the Point Defiance–Tahlequah route, nearly 90% of 2003 PM peak period walk-on respondents (87) reported that they left the ferry terminal by vehicle, compared to 67% (74) in 1999.
- For walk-on respondents on the Fauntleroy-Vashon route, bus/shuttle usage to both arrive at and depart the ferry terminals has increased somewhat, while use of autos to

access and egress the ferry terminals has decreased by a similar modest amount (see Table 5-7 and Table 5-8).

- On the Southworth–Vashon route, the number and share of PM peak period walk-on riders has increased despite a decline in total survey period ridership (see Table 7-5 and Table 7-6). The walk-on share of PM peak travelers jumped from 21% (78) in 1999 to 48% (140) in 2003.
- Among the patrons of the Seattle-Vashon passenger-only ferry, about 57% (267 passengers) were traveling to/from Vashon Island, with the remaining 43% (204 passengers) traveling to/from the Kitsap Peninsula via a transfer to/from the Southworth-Vashon ferry at Vashon Island. This compares to an even 50/50 split of such trips in 1999. It is likely that the substantial fare increases on the passenger-only route have had a greater impact on the Kitsap County riders, given that travel via the transfer connection is relatively involved and time consuming, and that the Seattle-Bremerton route provides a viable lower fare alternative for some travelers.

Geographic Travel Patterns

Using respondent-provided information about trip origin and destination locations, various geographic analyses of travel patterns were analyzed by boarding mode and travel direction; these results are provided in the individual chapters provided for each route. A few key findings are summarized below.

A trend of South Vashon Island representing an increasing share of PM peak period trip origins and destinations between 1993 and 1999 continued between 1999 and 2003. This may be indicative of increasing growth and residential density in the more southern parts of the island. Indeed, a look at census data from 1990 and 2000 reveals that the population in South Vashon grew by approximately 17% during that 10-year time period, while the population in North Vashon only grew by 2% (see Table 3-1). An exception to the general trend was observed for PM peak eastbound trips on the Seattle–Vashon passenger-only route, though the overall magnitude of ridership in this direction on this route is quite low.

Table 3-1
Vashon Island Population Growth by District — 1990 to 2000

District	*1990 Population**	*2000 Population**	*% Growth*
North Vashon	5,068	5,161	2%
South Vashon	4,241	4,962	17%

* source: U.S. Census Bureau

In the case of the Point Defiance–Tahlequah route, there was a significant increase in the share of trips to and from the North Tacoma district. Between 1999 and 2003, the share of PM peak northbound trips originating in North Tacoma increased from 15% to 27% (131 in 2003), while those from South Tacoma decreased from 22% to 7% (35 in 2003). Between 1999

and 2003, the share of PM peak southbound trips going to North Tacoma increased from 12% to 40% (125 in 2003), while those going to South Tacoma decreased from 32% to 10% (30 in 2003) .

The share of trips to and from the Seattle CBD increased on some routes while decreasing on others. On the Fauntleroy–Vashon route, the share of trips originating from the Seattle CBD decreased slightly from 30% to 24% (286 in 2003), while the Seattle CBD as a destination increased from 4% to 12% of PM peak trips (59 in 2003). On the Fauntleroy–Southworth route, eastbound PM peak trips going to the Seattle CBD decreased from 20% in 1999 to 13% in 2003 (30 trips total), while on the Seattle–Vashon route, the share of trip destinations in the Seattle CBD increased markedly from 28% in 1999 to 61% in 2003 (24 trips total).

3.3 TERMINAL RELOCATION ISSUES

WSF's Long Range Strategic Plan, being undertaken as part of the Washington Transportation Plan update, calls for certain steps to enhance revenues, reduce costs, and improve the operating efficiency of the system. In order to accomplish these goals and evaluate the service levels and route structures best suited to meet future ridership demand, current data on WSF customer travel patterns is needed.

At present, both the Fauntleroy terminal in West Seattle and Colman Dock (Pier 52) in downtown Seattle are in need of major capital investments. In order to maximize the productivity of limited funding, it is worthwhile to study possible alternatives. One such alternative involves the potential relocation of the two routes serving the Fauntleroy terminal to the Colman Dock terminal. Reduction in, or elimination of, service into Fauntleroy by relocating one or both existing routes to Colman Dock could result in reduced capital investment needs, or even the closure of the Fauntleroy terminal. The 2003 South Sound Travel Survey provides updated travel information to support the further study of these potential alternatives.

Using PM peak period data from the survey, the eastern trip end origins and destinations of the Fauntleroy-Southworth and Fauntleroy-Vashon route patrons were analyzed with respect to their locational proximity to both terminals. Specifically, the two sets of geographic districts previously identified for each route for purposes of mapping trip origins and destinations were examined, and each district on the east side of Puget Sound was classified as having either locational proximity to Pier 52/Colman Dock (generally those to the north), or locational proximity to the Fauntleroy terminal (generally those to the south). The analysis of which terminal was potentially better situated to serve a given district considered both the distance between the terminal and the district, as well as the differences in route crossing times associated with each terminal. The west side (Vashon and Kitsap Peninsula) districts were similarly grouped into north and south classifications. The collections of districts by each classification were then aggregated into two geographic areas on each side of Puget Sound for mapping purposes.

The east side geographic areas with locational proximity to either the Fauntleroy or Colman Dock terminals varied somewhat between travel to/from Southworth and travel to/from Vashon because of differences in vessel crossing times. For example, a Seattle-Vashon route

would increase the crossing time over the Fauntleroy-Vashon route from 15 minutes to as much as 35 minutes, a 20 minute or 133% increase. On the other hand, the 35 minute crossing time for a direct Seattle-Southworth route is essentially the same as the current Fauntleroy-Southworth route, assuming the usual intermediate stop at Vashon for the latter. This suggests that close-in areas approximately equal distance from both terminals would be better situated to Fauntleroy for service to/from Vashon (due to its shorter crossing time), while the same areas may be better situated to Colman Dock in downtown Seattle for service to/from Southworth. Put another way, under a terminal relocation scenario, the geographic area with locational proximity to the Fauntleroy terminal is somewhat larger for service to/from Vashon (see Figure 3-2 and Figure 3-3) than for service to/from Southworth (see Figure 3-4 and Figure 3-5).

Analysis of survey data for the existing Fauntleroy–Vashon route, as depicted in Figure 3-2, shows that approximately 64% of westbound PM peak trip origins (all boarding modes) would appear to be more closely served by a Vashon route to/from Colman Dock. This is generally comparable to the 62% share result in 1999. Figure 3-3 illustrates that approximately 55% of eastbound PM peak trip destinations (all boarding modes) would appear to be more closely served by a Vashon route to/from Colman Dock. This is somewhat higher than the 49% share observed in 1999.

Figure 3-4 and Figure 3-5 show the results of the similar analysis based upon survey data from the Fauntleroy–Southworth route. As shown in Figure 3-4, approximately 78% of westbound PM peak trip origins (all boarding modes) would appear to be more closely served by a Southworth route to/from Colman Dock. This is essentially the same result as the 77% share in 1999. Figure 3-5 indicates that approximately 45% of eastbound PM peak trip destinations (all boarding modes) would appear to be more closely served by a Vashon route to/from Colman Dock. This is somewhat lower than the 55% share observed in 1999. Note, however, that westbound trips in the PM peak period outnumber eastbound trips by nearly fourfold; this suggests that overall, Colman dock may still be the terminal location that most closely serves the predominant trip patterns for this route.

Figure 3-2
To Vashon (Westbound) PM Peak Travel:
Origin Locational Proximity to Terminal by Trip Purpose

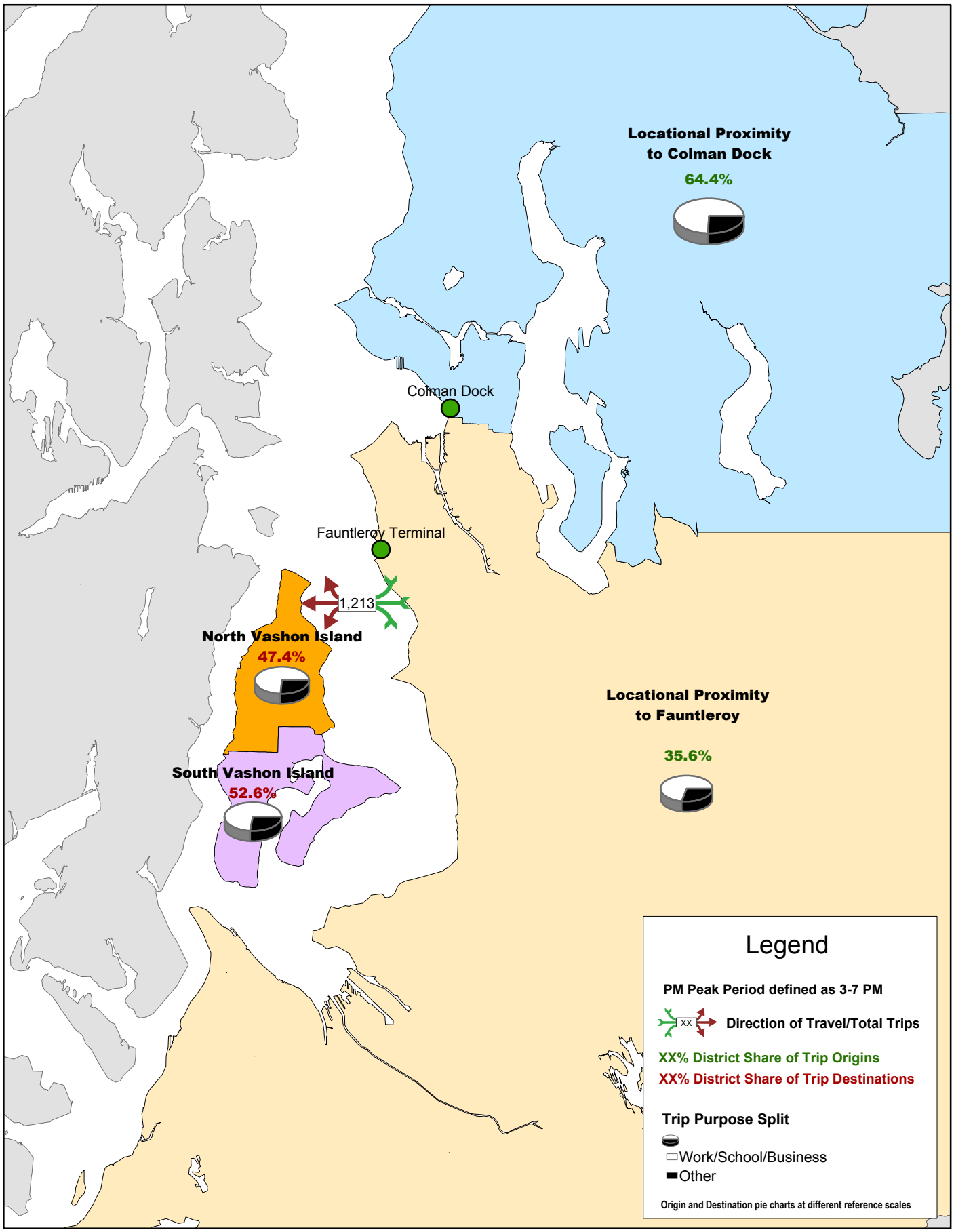


Figure 3-3
From Vashon (Eastbound) PM Peak Travel:
Destination Locational Proximity to Terminal by Trip Purpose

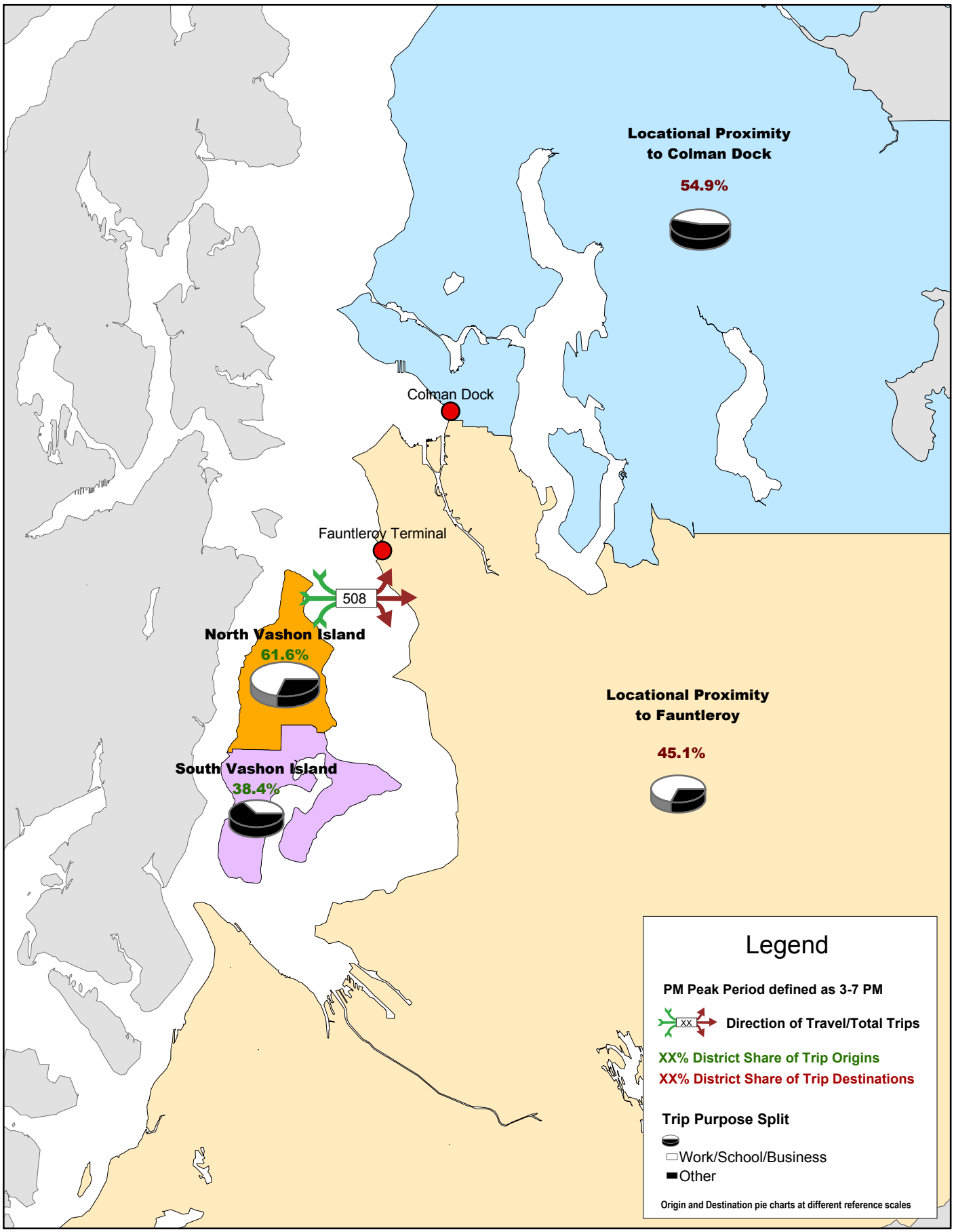


Figure 3-4
To Southworth (Westbound) PM Peak Travel:
Origin Locational Proximity to Terminal by Trip Purpose

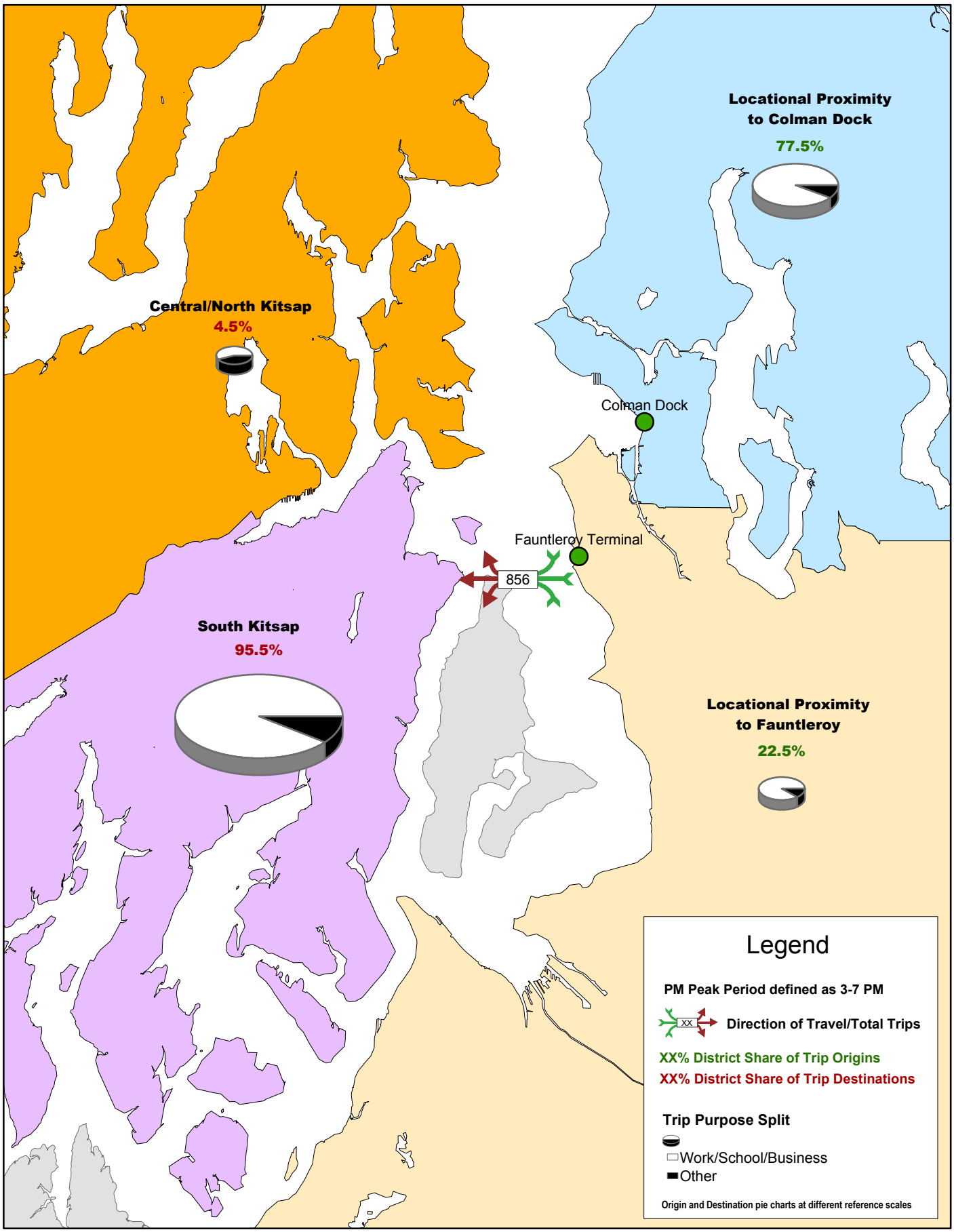


Figure 3-5
From Southworth (Eastbound) PM Peak Travel:
Destination Locational Proximity to Terminal by Trip Purpose